GUVA & GCVA

Two-Stage Variable Speed

High Efficiency Gas Furnace

User's Information Manual

WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**
- **WHAT TO DO IF YOU SMELL GAS:**
  - **Do not try to light any appliance.**
  - **Do not touch any electrical switch; do not use any phone in your building.**
  - **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
  - **If you cannot reach your gas supplier, call the fire department.**
- **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

You have purchased a residential variable speed high-efficiency, gas furnace. It is designed to heat your home efficiently and safely. It is also designed to interface with your cooling equipment to circulate conditioned air during cooling operation.

Your furnace functions are regulated by an integrated control module which responds to your home thermostat. This module controls all aspects of operation, and is designed to assure efficiency, reliability, comfort, and safety.

The GUVA and GCVA furnaces have been designed with efficiency and flexibility in mind. They are capable of operating on low stage or high stage, in accordance with current heating requirements. It incorporates the usage of a variable speed circulator blower to promote efficiency and provide gentle, quiet operation.

These furnaces can be installed in an upright (GUVA) or horizontal (GCVA) position. It can use either indoor or outdoor air for combustion purposes. Use of indoor air, referred to as non-direct vent (single pipe), requires only a flue pipe; combustion air is drawn from indoors. Use of outdoor air, referred to as direct vent (dual pipe), requires both a flue pipe and a combustion air intake pipe.

Heating & Air Conditioning Amana®
Comfort. Quality. Trust.

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Contents

Important Note To The Owner 3
Component Identification 4
General Information 5
Unit Location 5
Unit Installation 5
Clearances and Accessibility 6
Air Requirements 6
Combustion Air (Non-Direct Vent/Single Pipe) 6
Combustion Air (Direct Vent/Dual Pipes) 7
Flue Pipe and Condensate Drainage 7
Indoor Humidity 7
For Propane (LP) Gas Installations Only 8
Operating Your Furnace 9
Furnace Operation 9
Thermostat Functions 9
Dehumidistat 9
Integrated Control Module 10
Gas Valve 10
Igniter 10
Blowers 10
Starting Your Furnace 10
Shutting Down Your Furnace 10
Safety Circuits 11
Integrated Control Module 11
Primary Limit 11
Auxiliary Limit(s) 11
Rollout Limit(s) 11
Pressure Switches 11
Flame Sensor 11
Resetting From Lockout 11
Routine Maintenance 12
Annual Inspection 12
Filters 12
Filter Removal 12
Filter Cleaning and/or Replacement 13
Troubleshooting / Before You Request a Service Call 14
Safety Labels 16
For Additional Information 17

THE INSTALLATION AND SERVICING OF THIS EQUIPMENT MUST BE PERFORMED BY QUALIFIED, EXPERIENCED TECHNICIANS ONLY.

Due to policy of continual product improvement, the right is reserved to change specifications and design without notice.

RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.

⚠ WARNING

Should overheating occur, or the gas supply fail to shut off, shut off the manual gas valve to the furnace before shutting off the electrical supply.

⚠ WARNING

To avoid death, personal injury or property damage, do not use this furnace if any part of the furnace has been under water. Immediately call a qualified service technician to inspect the furnace and to replace any part of the control system and any gas control having been under water.

Important Note To The Owner

It is important that you fill out the owner's registration card and mail it today. This will assist us in contacting you should any service or warranty information change in the future. When filling in the registration card, be sure to include the Model, Manufacturing and Serial Numbers, plus the installation date. If the registration card cannot be located, please call 1-877-254-4729 to register the furnace.

Your warranty certificate is also supplied with the unit. Read the warranty carefully and note what is covered. Keep the warranty certificate in a safe place, so you can find it, if necessary.

Before using this manual, check the serial plate for proper model identification.

Installer - Affix this manual, the Installation Guide, and Specifications Sheet adjacent to the appliance.

Owner - Keep all product literature in a safe place for future reference.

ATTENTION INSTALLING PERSONNEL

As a professional installer you have an obligation to know the product better than the customer. This includes all safety precautions and related items.

Prior to actual installation, thoroughly familiarize yourself with this Instruction Manual. Pay special attention to all safety warnings. Often during installation or repair it is possible to place yourself in a position which is more hazardous than when the unit is in operation.

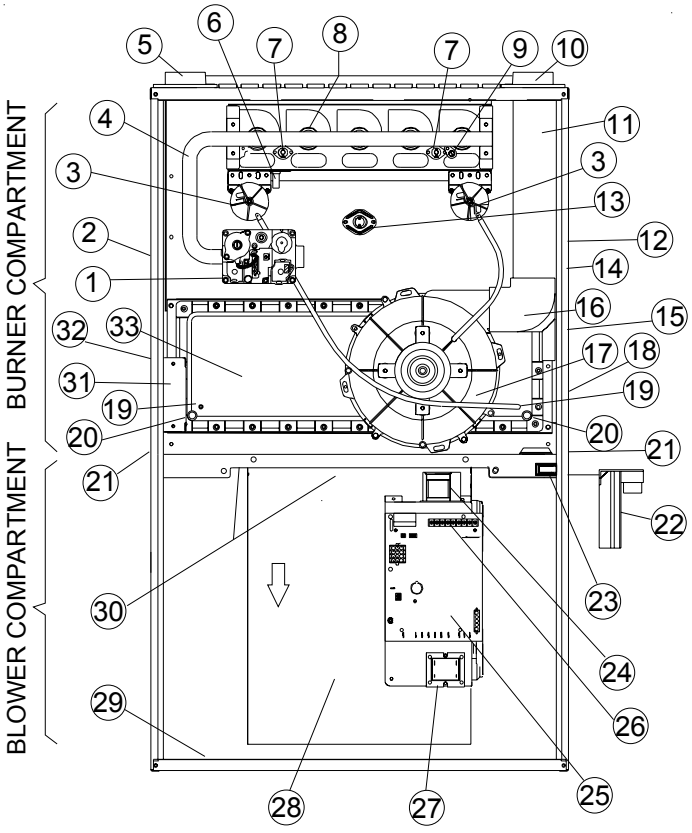
Remember, it is your responsibility to install the product safely and to know it well enough to be able to instruct a customer in its safe use.

Safety is a matter of common sense...a matter of thinking before acting. Most dealers have a list of specific good safety practices...follow them.

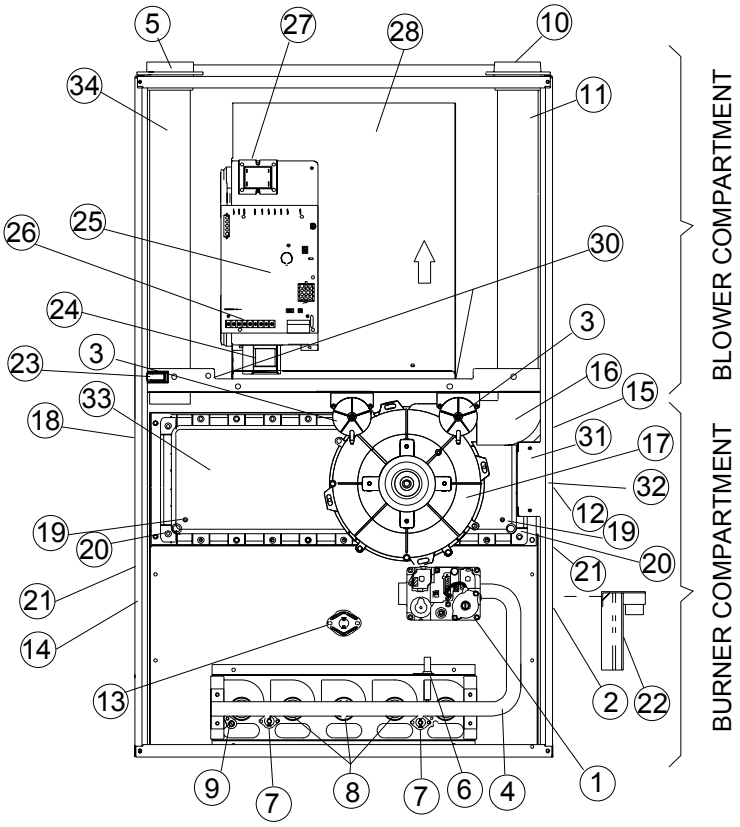
The precautions listed in this Installation Manual are intended as supplemental to existing practices. However, if there is a direct conflict between existing practices and the content of this manual, the precautions listed here take precedence.

Remember to leave this manual with the homeowner.

Component Identification



Upflow /Horizontal (GUVA Models)



Counterflow /Horizontal (GCVA Models)

1 Two-Stage Gas Valve
2 Gas Line Entrance (Alternate)
3 Pressure Switch(es)
4 Gas Manifold
5 Combustion Air Intake Connection
6 Hot Surface Igniter
7 Rollout Limit
8 Burners
9 Flame Sensor
10 Flue Pipe Connection
11 Flue Pipe
12 Combustion Air Intake (Alternate)
13 Primary Limit
14 Gas Line Entrance
15 Flue Pipe Connection (Alternate)
16 Rubber Elbow
17 Two-Speed Induced Draft Blower
18 Electrical Connection Inlets (Alternate)
19 Coil Front Cover Pressure Tap
20 Coil Front Cover Drain Port
21 Drain Line Penetrations
22 Drain Trap
23 Blower Door Interlock Switch
24 Inductor (Not All Models)
25 Two-Stage Integrated Control Module (with fuse and diagnostic LED)
26 24 Volt Thermostat Connections
27 Transformer (40 VA)
28 ECM Variable Speed Circulator Blower
29 Bottom Return Filter Retainer
30 Auxiliary Limit
31 Junction Box
32 Electrical Connection Inlets
33 Coil Front Cover
34 Combustion Air Inlet Pipe

General Information

This furnace is built to provide many years of safe and dependable service, provided it is properly installed and maintained. However, abuse and/or improper use can shorten the life of the furnace and create hazards for you, the homeowner. Take time to familiarize yourself with the information concerning furnace installation, features, operation, and maintenance contained within this manual.

⚠ WARNING

This product contains or produces a chemical or chemicals which may cause serious illness or death and which are known to the State of California to cause cancer, birth defects or other reproductive harm.

⚠ WARNING

To avoid possible equipment damage, personal injury, fire or death, the following instructions must be observed regarding unit location, air requirements and operating procedures.

Unit Location

1. The furnace area and the vicinity of any other gas appliances must be kept clear and free of combustible materials, gasoline, and other flammable vapors and liquids. Also, do not store or use flammable items such as paint, varnish, or lacquer in the area.
2. Do not store or use chlorine or fluorine or corrosion producing products (bleaches, cements, strippers, aerosols) near the unit. They can corrode the heat exchanger.
3. Do not use the furnace closet as storage for brooms, mops, brushes and oily rags or cloths. The area must be kept clear, clean and free of lint. Furnace must be kept free and clear of exposed or loose insulation materials in the area of installation. Examine the furnace area when the furnace or additional insulation is added since some insulation materials may be combustible.
4. Make sure the furnace is always connected to an approved vent, in good condition, to carry combustion products outdoors.
5. Familiarize yourself with the controls that shut off the gas and electrical power to the furnace. If the furnace is to be shut down at the end of the heating season, turn off both the gas and electrical power. For safety, always turn the gas and electrical power off before performing service or maintenance on the furnace.
6. Establish a regular maintenance schedule to insure efficient and safe operation of the furnace. The furnace should be checked at the beginning of each heating and cooling season by a qualified service technician.

⚠ WARNING

To avoid personal injury or fire, minimum clearances to combustible surfaces must be followed.

7. Make certain the required clearances for the furnace are always maintained. These clearances are listed on the furnace clearance label. If any question develops, contact the installer of the furnace, or another qualified servicer.

Unit Installation

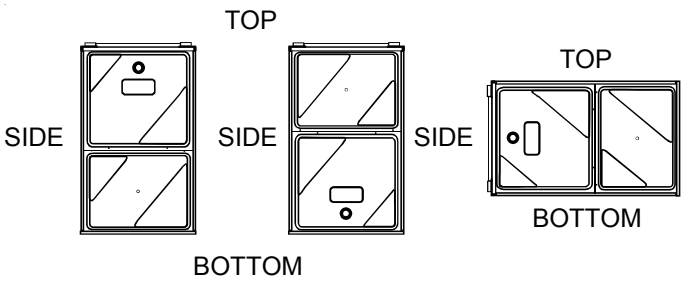
Examine the furnace installation to determine the following:

1. The flue vent pipe is physically sound, sealed, and well supported. The vent slopes upward to vent terminal so condensate drains back toward the furnace. The vent shows no evidence of leaking or separation at joints or fittings.
2. The return air duct connection is physically sound, sealed to the furnace casing, and terminates outside the space containing the furnace.
3. The physical support of the furnace is sound without sagging, cracks, or gaps around the base so as to provide a seal between the support and the base.
4. There are no obvious signs of deterioration of the furnace.
5. Check for proper burner flame performance. Flame should extend directly outward from burners without, curling, floating, or lifting off.

General Information

Clearances and Accessibility

Installations must adhere to the clearances to combustible materials for which this furnace has been design certified. The minimum clearance information for this furnace is provided on the unit's clearance label. These clearances must be permanently maintained. In addition to the required clearances to combustible materials, a 36-inch minimum for clearance servicing must be available in front of the unit. Unit positioning is referenced as follows:



Upflow **Counterflow** **Horizontal**

Air Requirements

WARNING

To avoid death, personal injury or property damage, enough fresh air for proper combustion and ventilation of flue gases must be provided to this furnace. Most homes require outside air to be supplied into the furnace area.

Improved construction and additional insulation in homes have reduced the heat loss and made these homes much tighter around doors and windows so that air infiltration is minimal. This creates a problem to supply ventilation and/or combustion air for gas fired or other fuel burning appliances. Any use of appliances that pull air out of the house (clothes dryers, exhaust fans, fireplaces, water heaters, non-direct vent furnaces, etc.) increases this problem and appliances could be starving for air.

If fuel-burning appliances are starved for air, the flue gases which these appliances produce as they operate may not vent outdoors properly, but remain in the home instead. These flue gases may include carbon monoxide.

WARNING

Death or personal injury from asphyxiation can result from exposure to carbon monoxide.

Carbon monoxide or "CO" is a colorless and odorless gas produced when fuel is not burned completely or when the flame does not receive sufficient oxygen.

Be aware of these air starvation signals which indicate conditions that may result in carbon monoxide or that carbon monoxide may be present:

1. Headaches-Nausea-Dizziness, Flu-Like Symptoms.
2. Excessive humidity-heavily frosted windows or a moist "clammy" feeling in the home.
3. Smoke from a fireplace will not draw up the chimney.
4. Flue gases that will not draw up the appliance vent pipe.

Combustion Air (Non-Direct Vent/Single Pipe)

WARNING

It is vitally important that the furnace have proper venting. To prevent possible death or personal injury due to asphyxiation, this furnace must never be common vented with another gas fired appliance. Any alteration to any venting system must be in accordance with local and national codes, and the manufacturer's instructions.

In non-direct vent installations (single pipe), the air for combustion and ventilation can typically be obtained from the surrounding unconfined space or louvered closet door. Observe the following precautions concerning air availability:

- When a furnace is installed in a closet and the closet door is louvered, DO NOT OBSTRUCT LOUVERS. Louvers must be open and clear to provide combustion air to the furnace.
- When a furnace is installed in a confined space within a home and the air for combustion and ventilation enters the space through ducts from the outside, be sure to routinely check the entering and outlet, grilled openings to verify that they are always clear and clean.

- Do not partition off a small area around the furnace utilizing a non-louvered door. This could obstruct the combustion air from reaching the furnace.
- Do not allow the furnace air intake (top or side) to become blocked.
- The combustion and ventilation air must never come from a corrosive atmosphere.

Combustion Air (Direct Vent/Dual Pipes)

⚠ WARNING

It is vitally important that the furnace have proper venting. To prevent possible death or personal injury due to asphyxiation, this furnace must never be common vented with another gas fired appliance. Any alteration to any venting system must be in accordance with local and national codes, and the manufacturer's instructions.

In direct vent installations (dual pipes), the air for combustion and ventilation is obtained from outdoors through an air intake pipe. Observe the following precautions concerning air availability:

- To ensure proper furnace operation, both the air intake pipe and the flue pipe must never become obstructed.
- The combustion and ventilation air must never come from a corrosive atmosphere.

Flue Pipe and Condensate Drainage

⚠ WARNING

To prevent possible death or personal injury due to asphyxiation, this furnace must be Category IV vented.

The venting of this furnace (Category IV venting) must be both gas and water tight. For proper performance, the size, length, number of elbows, and termination must be in accordance with the specifications outlined in the furnace installation guide. The flue system must slope towards the furnace for proper condensate drainage. The flue pipe and its termination must be kept clear of blockage. For further information on Category IV venting, refer to the installation instructions accompanying this product. If not included, ask your installing dealer or distributor for this information.

Provisions must be made to drain condensate from the furnace and protect the condensate drain trap and drain lines from freezing conditions. The drain trap and drain lines must be kept clear of blockage.

Indoor Humidity

Relative humidity is the amount of water vapor in the air relative to the amount the air can hold at the same temperature. Example: At 40% relative humidity, the air could hold 2 1/2 times as much moisture (2.5 x 40 = 100%) before becoming saturated.

The colder the air; the less moisture it can hold. As air is warmed, its ability to hold moisture is increased.

Example: A winter day, outdoor temperature 10°F, and relative humidity of 70%. If that air enters a home and is warmed to 72°F the relative humidity will drop to 6% (very dry) if no more moisture is added.

Relative humidity is important to your health and home as proper humidification helps reduce respiratory difficulties and helps improve the indoor air quality.

A good relative humidity is one just high enough to barely start condensation along the lower edges or lower corners of the windows. More than that can be damaging.

Frequent fogging or excessive condensation on inside windows indicates the indoor humidity level is too high for outdoor weather conditions. Damage to the building may result if the condition persists. (Condensation on inside of storm windows indicates loose inside windows. Adding weather-stripping to tighten inside windows usually corrects this problem.)

The following table shows the recommended maximum indoor humidity in relationship to the outdoor temperatures.

Outdoor Temperature	Humidity	
	Single -Paned Glass	Double-Paned Glass
+30°F	30%	50%
+20°F	20%	40%
+10°F	15%	35%
0°F	10%	30%
-10°F	5%	25%
-20°F	5%	20%
-30°F	3%	18%

Table 1

General Information

For Propane (LP) Gas Installations Only

For furnaces operating on propane gas, please review the following warnings before use.

⚠ WARNING

To avoid death, personal injury or property damage due to explosion or fire, install a gas detecting warning device. Since the odorant in propane gas can be reduced by iron oxide (rust), a gas detecting warning device is the only reliable method to detect propane gas leaks.

⚠ WARNING

If the gas furnace is installed in a basement, an excavated area or a confined space, it is strongly recommended to contact a propane supplier to install a gas detecting warning device in case of a gas leak.

- Since propane gas is heavier than air, any leaking gas can settle in any low areas or confined spaces.
- Propane gas odorant may fade, making the gas undetectable except with a warning device.

⚠ WARNING

An undetected gas leak will create a danger of explosion or fire. If the presence of gas is suspected, follow the instructions on the cover of this manual. Failure to do so could result in SERIOUS PERSONAL INJURY OR DEATH.

Operating Your Furnace

Furnace Operation

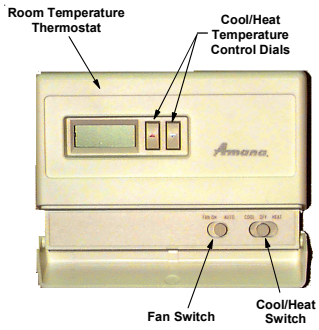
In the heating mode, gas is burned and the products of combustion are drawn through a heat exchanger by an induced draft blower. The flue gases are then exhausted from your home through a flue pipe system. The furnace circulator blower passes indoor air over the heat exchanger and then through the conditioned space. The furnace heat exchanger is actually two exchangers, a primary and a secondary, connected in series. The primary heat exchanger is a tubular stainless steel design built for exceptional durability and efficient heat transfer. The secondary heat exchanger, sometimes referred to as a recuperator coil, is a stainless steel tube and aluminum fin arrangement designed to remove the last remaining heat from the flue gases. The amount of heat withdrawn from the flue gases is so great that the gases are actually cooled to the point of condensing. This furnace therefore produces condensate (water) which must be directed to a drain. Furnaces of this type are referred to as “condensing furnaces”.

Thermostat Functions

This furnace requires a two-stage thermostat. (**NOTE:** A single-stage thermostat <u>can</u> be used with this furnace; however, true two-stage operation will not be achieved.) A two-stage thermostat will control the furnace firing rate (low stage or high stage) depending on the difference between the thermostat set point and the current room temperature. A small temperature difference between the set point and current room temperature will require a low stage firing rate, while a large difference between the two will require a high stage. BE SURE TO BECOME FAMILIAR WITH YOUR THERMOSTAT. Proper use of the two-stage thermostat and furnace will maintain tighter temperature control than a conventional single-stage system.

For optimal furnace operation, set the thermostat to the desired temperature. Do not “over adjust” the thermostat to turn the heat on. Over adjusting will cause high stage operation when low stage operation would have been sufficient. An appropriately set thermostat will minimize temperature fluctuations.

The most widely used types of two stage thermostats will control both heating and cooling functions and will have a Fan Switch with AUTO and ON settings. On AUTO, the circulating air blower will cycle on/off with the furnace but if switched to ON it will run continuously regardless of whether or not heating or cooling is being provided.



System Switch	Fan Switch	Action
OFF	AUTO	None
COOL	AUTO	System only cools, fan cycles off and on.
COOL	ON	System only cools, fan runs all the time.
HEAT	AUTO	System only heats, fan cycles off and on.
HEAT	ON	System only heats, fan runs all the time.
OFF	ON	No heating or cooling, fan runs all the time.

Typical Thermostat

There are also thermostats which automatically switch from heating to cooling mode and those with night set-back capability. The night set-back, or multiple set-back types allow for a different temperature at night or during the day when no one is at home. Programmable thermostats will allow for more control and tailoring of the heating and cooling functions. The level of this control will depend on the type of thermostat applied.

Dehumidistat

A dehumidistat is an accessory that controls excess humidity within a home. This accessory allows homeowner selection of a desired relative humidity setting similar to the selection of a desired temperature setting on the thermostat. The dehumidistat must be used in conjunction with a thermostat. The dehumidistat is not included with this furnace; however, the GUVA/GCVA furnace comes “dehumidistat-ready”.

⚠ WARNING

Electrical components are contained in both compartments. To avoid electrical shock, injury or death, do not remove any internal compartment covers. Contact a qualified servicer at once if an abnormal condition is noticed.

Notice:

Do not use this furnace if any part has been under water. Immediately call a qualified servicer to inspect the furnace and to replace any part of the control system and any gas control which has been under water.

Keep both doors in place except for inspection and maintenance. An interlock switch prevents furnace operation if the blower door is not in place.

Operating Your Furnace

Integrated Control Module
This furnace is equipped with an integrated control module which regulates all furnace operations. The control responds to input from the thermostat, initiates and controls normal furnace operation, and monitors and responds to all safety circuits.

Gas Valve
The gas valve regulates gas flow to the burners in response to input from the integrated control module.

Igniter
The furnace has an electronic ignition device which lights the burners automatically, never try to light the burners by hand.

Blowers
An induced draft blower is utilized to draw flue products through the heat exchanger and exhaust them outdoors. The circulator or main blower passes indoor air over the heat exchanger and throughout the conditioned space. Both blower motors are permanently lubricated, no further oiling is required.

Starting Your Furnace

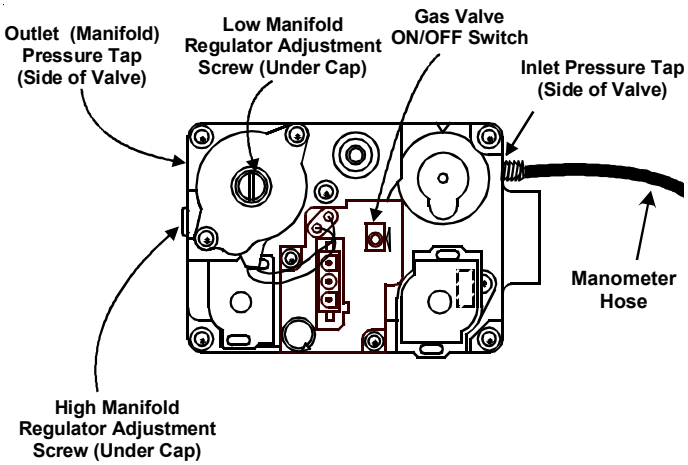
⚠ WARNING

PERSONAL INJURY HAZARD

To avoid death, personal injury, or property damage, do not remove any internal compartment covers. Electrical components are contained in both compartments. Contact a qualified servicer at once if any abnormal condition is noticed.

To put your furnace into operation, follow the steps listed below.

1. Close the external manual gas shut-off valve.
2. Turn off the electrical power to the furnace.
3. Set the room thermostat to the lowest possible setting.
4. Remove the burner compartment door.
5. This furnace is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
6. Move the furnace gas valve ON/OFF switch to the OFF position.
7. Wait five minutes to clear out any gas. Then smell for gas, including near the floor as some types of gas are heavier than air.
8. If you smell gas following the five minute waiting period in step 7, immediately follow the instructions on the cover of this manual. If you do not smell gas after five minutes, move the furnace gas valve ON/OFF switch to the ON position.
9. Replace the burner compartment door.
10. Open the external manual gas shut-off valve.
11. Turn on the electrical power to the furnace.
12. Adjust the thermostat to a setting above room temperature.
13. After the burners are lit, set the thermostat to desired temperature.


Outlet (Manifold) Pressure Tap (Side of Valve)
Low Manifold Regulator Adjustment Screw (Under Cap)
Gas Valve ON/OFF Switch
Inlet Pressure Tap (Side of Valve)
Manometer Hose
High Manifold Regulator Adjustment Screw (Under Cap)

White-Rodgers
Model 36E54
(Right Side Up)

Shutting Down Your Furnace
To shut down your furnace operation, follow the steps listed below.

1. Set the thermostat to the lowest setting.
2. Integrated control closes gas valve extinguishing flame.
3. Induced draft blower is de-energized following a 15-second delay. The circulator blower is de-energized following a 60-, 90-, 120-, or 180-second delay period and a 30-second ramp down period.
4. Remove the burner compartment door.
5. Move the furnace gas valve ON/OFF switch to the OFF position.
6. Turn OFF all electrical power to the furnace if service is to be performed.
7. Close the external manual gas shut-off valve.
8. Replace the burner compartment door.

Safety Circuits

A number of safety circuits are employed to ensure safe and proper furnace operation. These circuits serve to control any potential safety hazards and, as inputs in the monitoring and diagnosis of abnormal function. These circuits are continuously monitored by the integrated control module.

Integrated Control Module

The integrated control module is an electronic device which regulates all furnace operations. Responding to the thermostat, the module initiates and controls normal furnace operation, and monitors and addresses all safety circuits. If a potential safety concern is detected, the module will take the necessary precautions and provide diagnostic information through an LED located on the module. See troubleshooting chart on page 14.

Primary Limit

The primary limit control is located on the partition panel and monitors heat exchanger compartment temperatures. It is a normally closed (electrically), automatic reset, temperature activated sensor. This limit guards against overheating as a result of insufficient conditioned air passing over the heat exchanger.

Auxiliary Limit(s)

The auxiliary limit control is located on or near the blower deck and monitors heat exchanger compartment temperatures. It is a normally closed (electrically), manual reset, temperature activated sensor. This limit guards against overheating as a result of insufficient conditioned air passing over the heat exchanger.

Rollout Limit(s)

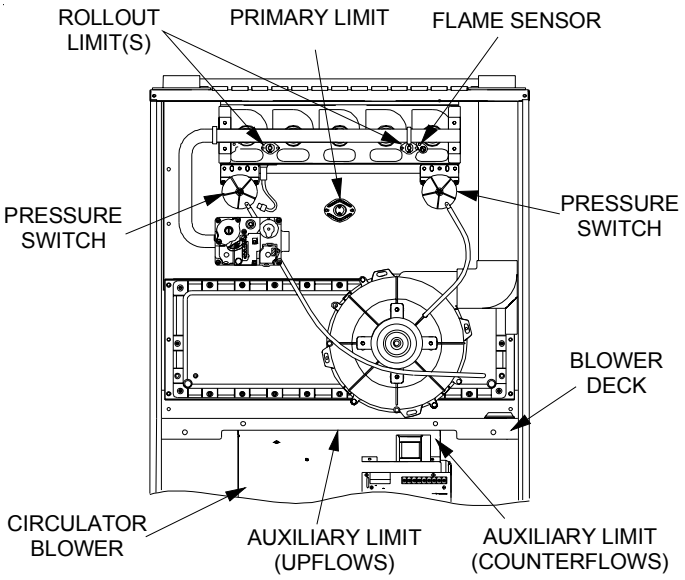
The rollout limit is a normally-closed (electrically), manual-reset, temperature-activated sensor. It is mounted on the burner/manifold assembly and monitors the burner flame. If there is an improper draw of burner flames into the heat exchanger, the rollout limit will detect it and shutdown gas flowing to the burners.

Pressure Switches

The pressure switches are normally-open (closed during operation), single-pole single-throw, negative air pressure activated switches. They monitor the airflow (combustion air and flue products) through the heat exchanger via pressure taps located on the induced draft blower and the coil front cover. These switches guard against insufficient airflow (combustion air and flue products) through the heat exchanger and blocked condensate drain conditions.

Flame Sensor

The flame sensor is a probe mounted to the burner/manifold assembly which uses the principle of flame rectification to determine the presence or absence of flame.



Safety Circuits
Upflow Shown
(Counterflow Similar)

Resetting From Lockout

Furnace lockout is characterized by a non-functioning furnace (circulator blower may be running continuously) providing a one flash diagnostic LED code. Lockout results when a furnace is unable to achieve ignition after three attempts, or when it has lost flame five times during a single call for heat. If the furnace is in "lockout", it may be reset by any of the following methods:

1. One-hour automatic reset. Control will automatically reset itself and attempt to resume normal operations following a one hour lockout period.
2. Power interruption. Interrupt 115 volt power to the furnace for between 0 and 20 seconds.
3. Thermostat cycle. Interrupt thermostat signal to the furnace for between 0 and 20 seconds.

If the condition which originally caused the lockout still exists, the control will return to lockout. Refer to the "Troubleshooting" section for aid in determining the cause. If your furnace frequently locks out, a problem exists which must be corrected. Contact a qualified servicer.

Routine Maintenance

If you perform maintenance on the furnace yourself, remember that certain mechanical and electrical knowledge, skills and tools are required to perform maintenance on the furnace. Personal injury or death my result. If you are not properly trained. You should call your installing dealer or place of purchase if you are uncertain about your ability to perform maintenance.

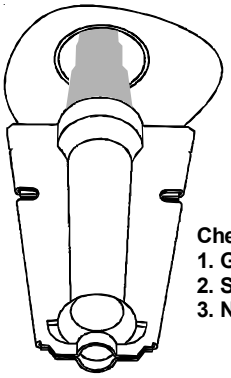
⚠ WARNING

To avoid death or personal injury due to electrical shock, disconnect the electrical power before performing any maintenance.

Annual Inspection

The furnace should be inspected by a qualified installer, or service agency at least once per year. This check should be performed at the beginning of the heating season. This will insure that all furnace components are in proper working order and that the heating system functions appropriately. Particular attention should be paid to the following items. Repair as necessary.

- Flue pipe system. Check for blockage and/or leakage. Check the outside termination and the connections at and internal to the furnace.
- Combustion air intake pipe system (where applicable). Check for blockage and/or leakage. Check the outside termination and the connection at the furnace.
- Heat exchanger. Check for corrosion and/or buildup within the heat exchanger passageways.
- Burners. Check for proper ignition, burner flame, and flame sense. Flames should extend directly outward from burners without curling, floating or lifting off.
- Drainage system. Check for blockage and/or leakage. Check hose connections at furnace.
- Wiring. Check electrical connections for tightness and/or corrosion. Check wires for damage.
- Filters. Check that filters are clean and in the proper placement in the furnace or duct system.



Check the burner flames for:
1. Good adjustment
2. Stable, soft and blue
3. Not curling, floating, or lifting off.

Burner Flame

Filters

⚠ WARNING

To avoid death, personal injury or property damage, disconnect electrical power before removing filters. Never operate furnace without a filter installed. Dust and lint will build up on internal parts resulting in loss of efficiency, equipment damage and possible fire.

A return air filter is not supplied with this furnace; however, a means of filtering all of the return air must be provided. Your installer will supply filters at the time of installation. Become familiar with filter location and procedures for removing, cleaning and replacing them.

If you need assistance, contact the installer of your furnace or another qualified servicer.

Filters must be inspected, cleaned or changed every two months or as required. As a homeowner, it is your personal responsibility to keep air filters clean. Remember that dirty filters are the most common cause of inadequate heating or cooling performance.

Filter Removal

Filters are located either at the unit or in a central return grille. Horizontal installations use a ductwork or central return grille location. If a filter is located at the unit, use the following information to aid in filter removal.

Upflow Filters (Upright)

To remove a filter from the bottom of the blower compartment:

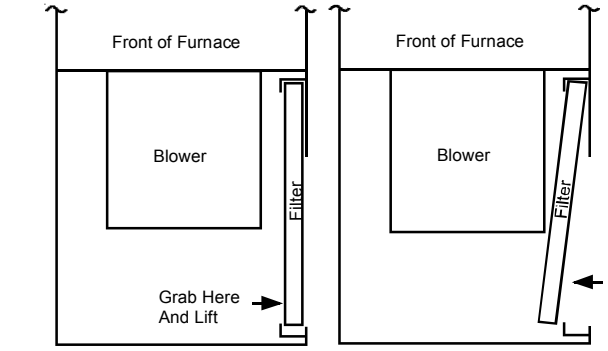
1. Turn OFF electrical power to furnace.
2. Remove blower compartment door.
3. Push back and up on the wire filter retainer to release it from under the front lip of the furnace basepan.
4. Slide filter forward and out.
5. Replace filter by reversing the procedure for removal.

To remove filters from an external filter rack in an upright upflow installation, follow the directions provided with the external filter rack kit.

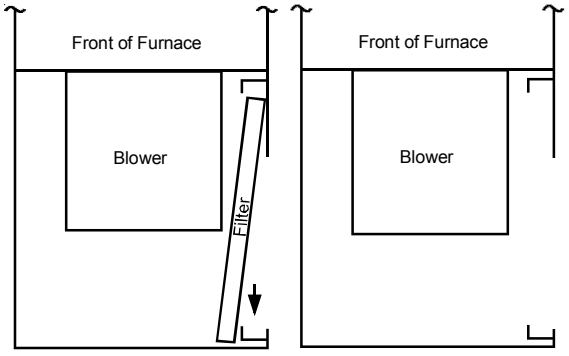
Routine Maintenance

To remove internal filter(s) from the retaining rails on the side(s) of the blower compartment in an upright installation:

1. Turn OFF electrical power to furnace.
2. Remove the blower compartment door.
3. Grasp the lower portion of the filter and lift up.
4. Angle the filter towards the blower until the filter is clear of the bottom rail.
5. Lower the filter down and pull outward.
6. Replace the filter by reversing the procedure for removal.



a. Lift filter above bottom rail b. Tilt filter to clear rail.



c. Lower filter below top rail. d. Slide filter out.

Filter Removal Procedure

If using Media Air Cleaner MAC1 or Electronic Air Cleaner EAC5, follow the directions provided with the air cleaner for proper filter removal, cleaning, and replacement.

Counterflow Filters (Upright)

To remove filters from the ductwork above an upright counterflow installation:

1. Turn off electrical power to furnace.
2. Remove access door provided in the ductwork above the furnace.
3. Remove filters from the ductwork.
4. Replace filters opposite of removal. Replace access door.

Horizontal and Central Return Filters

To remove filter(s) from ductwork or central return grille installation:

1. Turn off electrical power to the furnace.
2. Remove filter(s) from ductwork or central grille location.
3. Replace filter(s) opposite removal.

Filter Cleaning and/or Replacement

Use a vacuum cleaner to clean out the blower compartment and the adjacent area of the return air duct

Disposable filters must be replaced with a filter or filters of the same size as that which is removed. Filters must comply with UL900 or CAN/ULC-S111 Standards.

Permanent filters must be cleaned, washed, and dried as specified by the filter manufacturer. Filters which use a dust adhesive should be sprayed or oiled as recommended by the filter and adhesive manufacturers. If it becomes necessary to replace a permanent filter, it must be replaced with a filter or filters of the same size as that which is removed. Filters must comply with UL900 or CAN/ULC-S111 Standards.

When reinstalling filters, be careful to maintain correct airflow direction.

Troubleshooting / Before You Request a Service Call

If your furnace is not operating or is performing improperly, take time to perform the following checks before requesting service. A couple of simple checks may allow you to avoid a service call. If the following steps do not resolve the problem, contact a qualified servicer for further troubleshooting and/or repairs. Do not attempt troubleshooting beyond that which is outlined below. Do not attempt repairs yourself. Use the diagram on page 4 for parts reference.

If your furnace will not start, check the following (in sequence):

NOTE: If flashing, the integrated control module diagnostic LED flash code must be recorded prior to turning off the power to the furnace or opening the blower compartment door. To determine the flash code, count the number of flashes seen through the blower compartment door sight glass. Refer to the diagnostics chart for a description of the LED flash codes and their possible causes.

- Check thermostat for proper operation. Verify that it is set on HEAT and that temperature setting is above room temperature.
- Check to see that the electrical disconnect at the furnace location is in the ON position. If the switch is in the OFF position, switch it to the ON position to supply electrical power to the furnace.
- Check fuse or circuit breaker in furnace electrical circuit. Replace as necessary.
- Check to see that the manual gas shut-off valve external to the furnace is in the ON position. If the valve is in the OFF position, turn the gas ON following the start up procedures outlined in the “Starting Your Furnace” section.

NOTE: If flashing, record the integrated control module diagnostic LED flash code prior to power interruption. Turn off furnace electrical power prior to proceeding.

- Remove burner compartment door and check to see that gas valve ON/OFF switch is in the ON position. (See figure on page 10) If the switch is in the OFF position, turn the gas ON following the start up procedures outlined in the “Starting Your Furnace” section.
- Remove blower compartment door and check to verify whether or not the manual reset auxiliary limit control has tripped. The auxiliary limit control is located on the circulator blower. (See figure on page 4) If the auxiliary limit control has tripped, a reset “click” will be heard when the red button on the back of the control is pressed. Replace door. **NOTE:** Do not reset the auxiliary limit control more than once. If the control trips again, follow the furnace shut down procedure outlined in the “Starting Your Furnace” section and contact a qualified servicer.
- Check for blockage at the termination(s) of flue pipe (and the combustion air intake pipe where present). Also check for blockage in the drain trap. Clear if possible. (See figure on page 4)
- Check for blockage in the drain lines. If blockage is present, please contact a qualified servicer.

If you experience insufficient airflow, check the following (in sequence):

- Check for dirty filter(s). This is the most common cause of improper furnace operation. Replace or clean filters as necessary.
- Check for blocked return air or supply air grilles throughout your home. Grilles may be blocked by furniture,

Troubleshooting / Before You Request a Service Call

Symptoms of Abnormal Operation	Associated LED Code (See Notes 1 & 2)	Probable Cause(s)	Corrective Action
- Furnace fails to operate. and - Integrated control module diagnostic LED provides no signal.	None	- No electrical power to furnace.	- Confirm that the external electrical disconnect switch is in the "ON" position. If "OFF", switch to the "ON" position. - Check for tripped or blown circuit breaker or fuse. Replace if necessary.
- Furnace fails to operate. and - Integrated control module diagnostic LED is lit continuously.	 Continuous On	- Integrated control module has an internal fault.	- Have servicer inspect furnace and replace faulty integrated control module if necessary
- Furnace is not operating and - Integrated control module diagnostic LED is flashing one flash.	 1 Flash (See Note 3)	- No gas supply to furnace. - Condensate drain blocked.	- Confirm that the external manual gas shut-off valve is in the "Open" position. If “Closed”, follow the start up procedure outlined in this manual when moving the gas shut-off valve to the “Open” position. - Check drain system for blockage.
- Furnace fails to operate. and - Integrated control module diagnostic LED is flashing two flashes.	 2 Flashes	- Possible pressure switch malfunction.	- Have servicer inspect furnace and make necessary corrections.
- Induced draft blower runs continuously with no further furnace operation. and - Integrated control module diagnostic LED is flashing three flashes.	 3 Flashes	- Blocked flue and/or inlet air pipe. - Blocked drain system.	- Check flue and/or inlet air piping for blockage, especially at the outdoor termination(s). - Check drain system for blockage. Clear if possible.
- Circulator blower runs continuously with no further furnace operation. and - Integrated control module diagnostic LED is flashing four flashes.	 4 Flashes	- Dirty filters or blocked return grilles.	- Check filters. Repace or clean if necessary. - Check for furniture, curtains, etc. blocking return grilles. Correct if necessary.
- Furnace fails to operate. and - Integrated control module diagnostic LED is flashing six flashes.	 6 Flashes	- Polarity of electrical power to furnace or control module is reversed. - Poor unit ground.	- Have servicer inspect furnace and make necessary corrections.
- Normal furnace operation. but - Integrated control module diagnostic LED is flashing seven flashes.	 7 Flashes	- Flame sensor is coated/oxidized. - Flame sensor is incorrectly positioned in burner flame	- Have servicer inspect furnace and make necessary corrections.
- Furnace is not operating. and - Integrated control module diagnostic LED is flashing eight flashes.	 8 Flashes (See Note 4)	- Possible igniter or integrated control module problem.	- Have servicer inspect furnace and make necessary corrections.
- Furnace operating on low stage with temperature of conditioned air lower than typical. and - Integrated control module diagnostic LED is flashing nine flashes.	 9 Flashes (See Note 3)	- Blocked flue and/or inlet air pipe.	- Check flue and/or air inlet piping for blockage, especially at the outdoor termination(s).
- Induced draft and circulator blower run continuously with no further furnace operation. and - Integrated control module diagnostic LED is flashing continuously.	 Continuous Flashing	- Malfunction in flame sense circuit.	- Have servicer inspect furnace and make necessary corrections.

1) LED flash code may be viewed through sight glass in blower compartment door.
2) LED flash code will cease if power to the control module is interrupted through the disconnect or furnace door switch.
3) Integrated control module will automatically attempt to reset from "lock out" (1 Flash) after one hour.

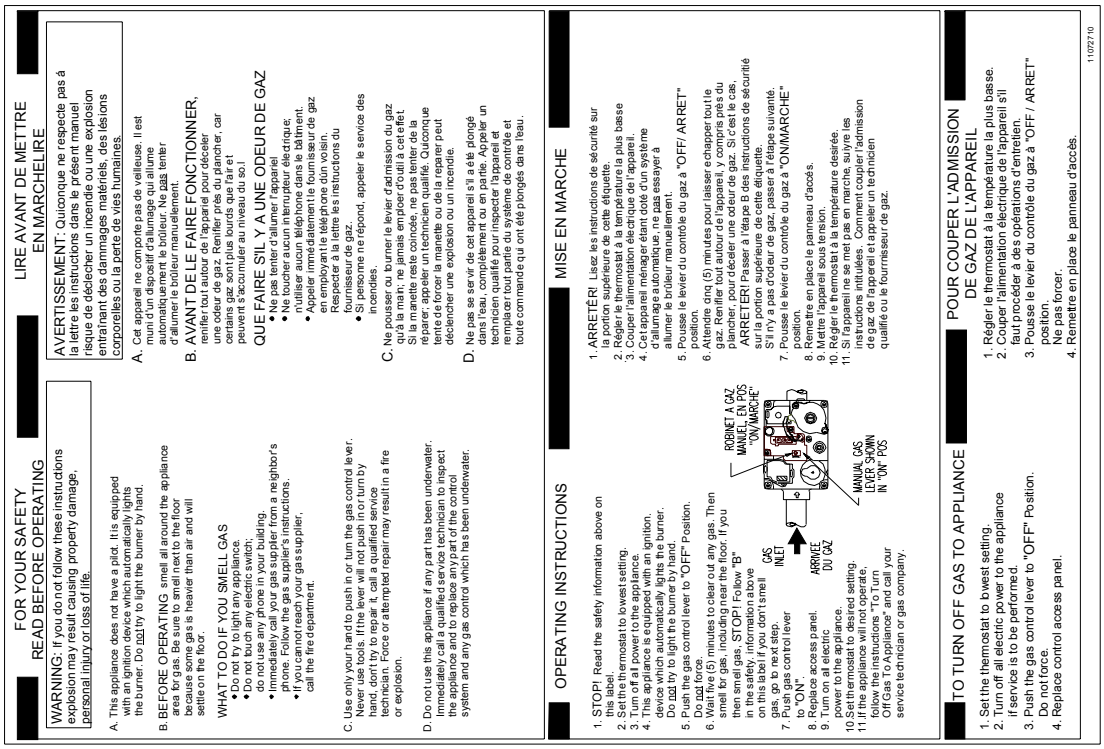
Safety Labels

NOTE: If safety labels are missing or illegible, contact the installing dealer or our Customer Service Department for ordering information.

WARNING: THIS COMPARTMENT MUST BE CLOSED EXCEPT WHEN SERVICING

AVERTISSEMENT: CE COMPARTIMENT DOIT RESTER FERME, SAUF POUR L'ENTRETIEN

B13580-1L$_A$


FOR YOUR SAFETY
READ BEFORE OPERATING
WARNING: If you do not follow these instructions explosion may result causing property damage, personal injury or loss of life.
A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.
WHAT TO DO IF YOU SMELL GAS
• Do not try to light any appliance.
• Do not touch any electric switch; do not use any phone in your building.
• Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
• If you cannot reach your gas supplier, call the fire department.
C. Use only your hand to push in or turn the gas control lever. Never use tools. If the lever will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.
D. Do not use this appliance if any part has been underwater. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been underwater.
LIRE AVANT DE METTRE EN MARCHE LIRE
AVERTISSEMENT: Quiconque ne respecte pas à la lettre les instructions dans le présent manuel risque de déclecher un incendie ou une explosion entraînant des dommages matériels, des lésions corporelles ou la perte de vies humaines.
A. Cet appareil ne comporte pas de veilleuse. Il est muni d'un dispositif d'allumage qui allume automatiquement le brûleur. Ne pas tenter d'allumer le brûleur manuellement.
B. AVANT DE LE FAIRE FONCTIONNER, renifler tout autour de l'appareil pour déceler une odeur de gaz. Renifler près du plancher, car certains gaz sont plus lourds que l'air et peuvent s'accumuler au niveau du sol
QUE FAIRE SIL Y A UNE ODEUR DE GAZ
• Ne pas tenter d'allumer l'appariel
• Ne toucher aucun interrupteur électrique; n'utiliser aucun téléphone dans le bâtiment.
• Appeler immédiatement le fournisseur de gaz en employant le téléphone dun voisin. Respecter à la lettre les instructions du fournisseur de gaz.
• Si personne ne répond, appeler le service des incendies.
C. Ne pousser ou tourner le levier d'admission du gaz qu'à la main; ne jamais employer d'outil à cet effet. Si la manette reste coincée, ne pas tenter de la réparer; appeler un technicien qualifié. Quiconque tente de forcer la manette ou de la reparer peut déclencher une explosion ou un incendie.
D. Ne pas se servir de cet appareil s'il a été plongé dans l'eau, complètement ou en partie. Appeler un technicien qualifié pour inspecter l'appareil et remplacer tout partie du système de contrôle et toute commande qui ont été plongés dans l'eau.
OPERATING INSTRUCTIONS
1. STOP! Read the safety information above on this label.
2. Set the thermostat to lowest setting.
3. Turn off all power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Push the gas control lever to "OFF" Position. Do not force.
6. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you then smell gas, STOP! Follow "B" in the safety information above on this label if you don't smell gas, go to next step.
7. Push gas control lever to "ON".
8. Replace access panel.
9. Turn on all electric power to the appliance.
10. Set thermostat to desired setting.
11. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas company.
GAS INLET
ARRIVEE DU GAZ
ROBINET A GAZ MANUEL EN POS "ON"/MARCHE
MANUAL GAS LEVER SHOWN IN "ON" POS
MISE EN MARCHE
1. ARRETER! Lisez les instructions de sécurité sur la portion supérieure de cette étiquette.
2. Régler le thermostat à la température la plus basse
3. Couper l'alimentation électrique de l'appareil.
4. Cet appareil ménager étant doté d'un système d'allumage automatique, ne pas essayer à allumer le brûleur manuellement.
5. Pousse le levier du contrôle du gaz à "OFF/ ARRET" position.
6. Attendre cinq (5) minutes pour laisser echapper tout le gaz. Renifler tout autour de l'appareil, y compris près du plancher, pour déceler une odeur de gaz. Si c'est le cas, ARRETER! Passer à l'étape B des instructions de sécurité sur la portion supérieure de cette étiquette. S'il n'y a pas d'odeur de gaz, passer à l'étape suivanté.
7. Pousse le levier du contrôle du gaz à "ON/MARCHE" position.
8. Remettre en place le panneau d'accès.
9. Mettre l'appareil sous tension.
10. Régler le thermostat à la température desirée.
11. Si l'appareil ne se met pas en marche, suivre les instructions intitulées. Comment coupler l'admission de gaz de l'appareil et appeler un technicien qualifié ou le fournisseur de gaz.
TO TURN OFF GAS TO APPLIANCE
1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Push the gas control lever to "OFF" Position. Do not force.
4. Replace control access panel.
POUR COUPER L'ADMISSION DE GAZ DE L'APPAREIL
1. Régler le thermostat à la température la plus basse.
2. Couper l'alimentation électrique de l'appareil s'il faut procéder à des opérations d'entretien.
3. Pousse le levier du contrôle du gaz à "OFF / ARRET" position.
Ne pas forcer.
4. Remettre en place le panneau d'accès.
11072710

WARNING: IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTAINANCE CAN CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE, EXPOSURE TO SUSTANCES IN FUEL OR FROM FUEL COMBUSTION WHICH CAN CAUSE DEATH OR SERIOUS ILLNESS, AND WHICH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER BIRTH DEFECTS, OR OTHER REPRODUCTIVE HARM. REFER TO THE USER'S INFORMATION MANUAL PROVIDED WITH THIS FURNACE. INSTALLATION AND SERVICE MUST BE PERFORMED BY A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.

FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

SEE INSIDE SURFACE OF LOUVERED DOOR FOR LIGHTING/OPERATING INSTRUCTIONS.

AVERTISSEMENT: UNE INSTALLATION, UN REGLAGE, UNE MODIFICATION, UNE ENTRETIEN, OU UNE MAINTAINANCE INCORRECTS PEUVENT ENTRAINER DES DOMMAGES MATERIALS, DES LESIONS CORPORELLES OU LA PERTE DE VIES HUMAINES. CONSULTER LE MANUEL DES USAGER FOURNI AVEC CE GENERATEUR D'AIR CHAUD. L'INSTALLATION ET L'ENTRETIEN DOIVENT ETRE EFFECTUE'S PAR UN INSTALLATEUR QUALIFIE, UN ORGANISME DE MAINTENANCE OU LE FOURNISSEUR DE GAZ.

AVERTISSEMENT

NE PAS ENTREPOSER NI UTILISER DE L'ESSENCE NI D'AUTRES VAPEURS OU LIQUIDES INFLAMMABLES DANS LES VOISINAGES DE CET APPAREIL, NI DE TOUT AUTRE APPAREIL.

LES INDICATIONS POUR L'ECLAIRAGE ET LE SERVICE SE TROUVENT A LA SURFACE INTERIEURE DU COMPARTMENT BRULEUR.

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For Additional Information

Most questions can be answered by your local dealer. If you need further information regarding the operation, maintenance, or service of your furnace, contact your dealer.

If you have other matters that cannot be resolved locally, or you need additional information regarding other heating and cooling products offered by us - please call:

CONSUMER INFORMATION LINE
TOLL FREE
1-877-254-4729 (U.S. only)
email us at: hac.consumer.affairs@amanahvac.com
fax us at: (731) 856-1821
(Not a technical assistance line for dealers.)

Outside the U.S., call 1-713-861-2500.
(Not a technical assistance line for dealers.)
Your telephone company will bill you for the call.

Ask a participating dealer about our extended service plan. It adds to the strong warranty with additional parts and labor coverage.

Asure™
EXTENDED SERVICE PLAN

To obtain the proper labels, the Model, Manufacturing Number and Serial Number of the unit must be supplied. These numbers are recorded on the nameplate of the furnace. For convenience, record this information here:

MODEL NUMBER: _ _ _ _ _ _ _ _ _ _ _ _
MANUFACTURING NUMBER: P _ _ _ _ _ _ _F
SERIAL NUMBER: _ _ _ _ _ _ _ _ _ _

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